

Lecture 17

Benchmarking and Evaluation of Land Administration Systems

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(with acknowledgement to Daniel Steudler)

Benchmarking and Evaluation of land administration systems

- What is benchmarking ?
- Why benchmarking ?
- A definition of benchmarking
- Five basic steps in benchmarking – a benchmarking model
- Analysis tools
- Examples from UN-FIG Cadastral Template Project and FIG

What is Benchmarking ?

- measuring performance
- compare performance with a "benchmark"
- compare performance with "best practice"
- monitoring change
- getting facts for decision-making

Why Benchmarking ?

- A formula one race car: sensors collect 2 MB of data per lap (!!)
- What would cricket be without statistics ?



- **"You can't improve what you can't measure !"**
- **"If you cannot measure it, you cannot manage it !"**

Why Benchmarking?

- to identify, understand and implement international best practice
 - to overcome complacency
 - to build and reinforce broad commitment to change
 - to achieve quantum leaps in improvement
 - to develop a shared vision for the enterprise
- **Total Quality Management**

A Definition of Benchmarking

by AusIndustry-Best Practice Program (1995):

“An *on-going, systematic process* to search for and introduce international *best practice* into your own organization, conducted in such a way that all parts of your organization understand and achieve their full potential. The search may be for *products, services, or business practices* and for processes of competitors or those organizations recognized as leaders in the industry or specific business processes that you have chosen.”

What to Benchmark?

→ performance indicators or business processes

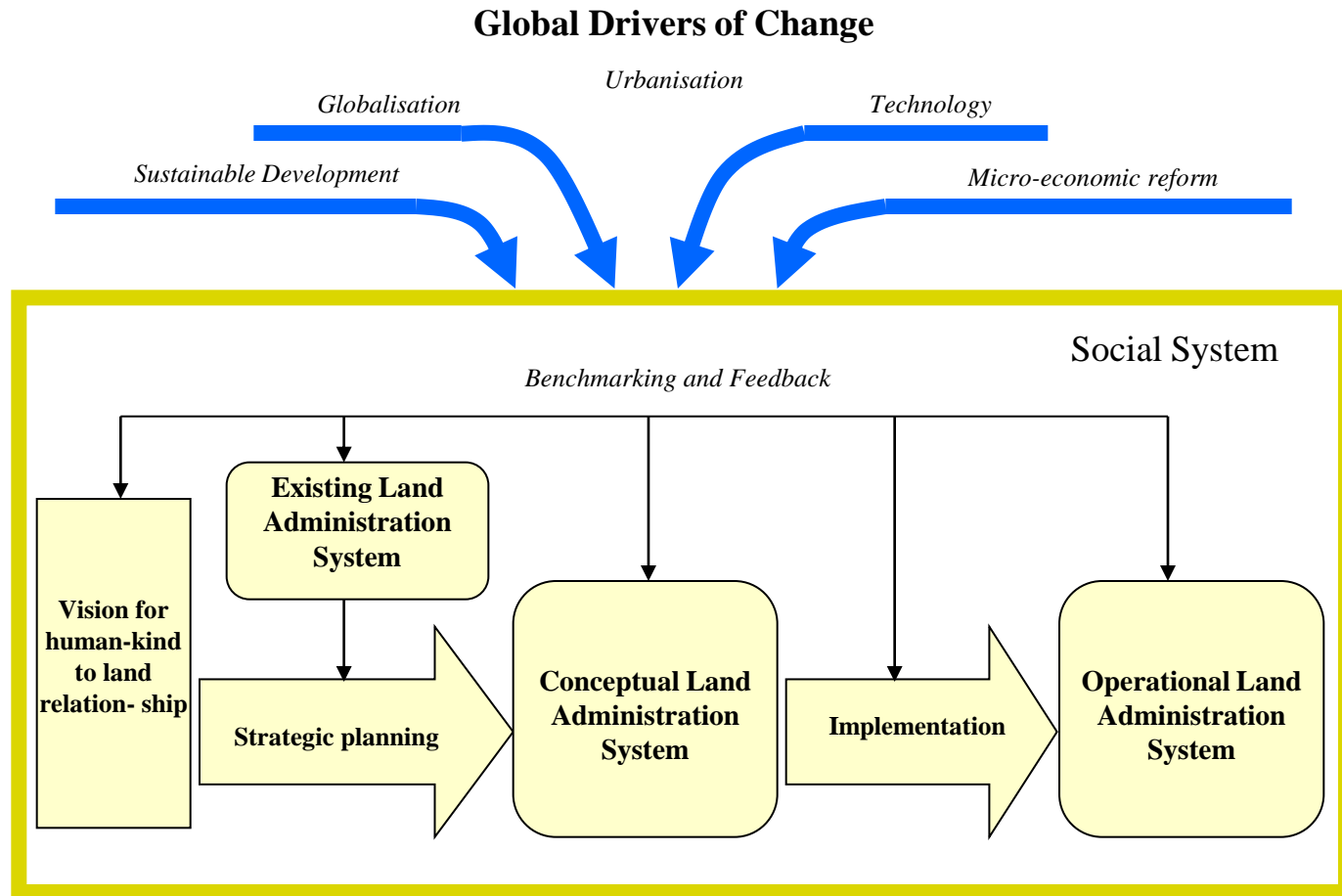
You can benchmark **performance indicators**, such as:

- profit margins, returns on investments
- cycle times, percentage defects
- sales per employee
- cost per unit

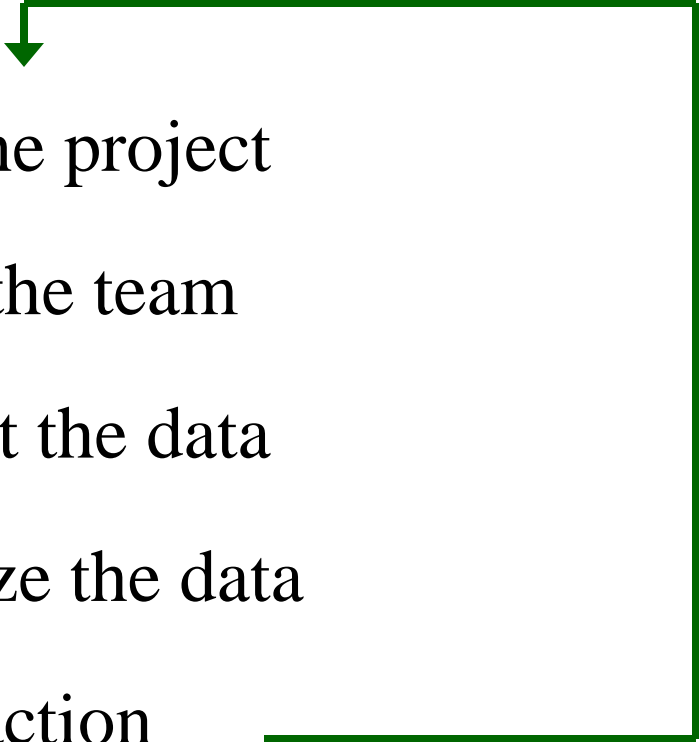
Or you can benchmark **business processes** which drive performance indicators, such as:

- how you develop a new product or service
- how you manage to meet a customer's order or respond to an enquiry
- how you produce your product or service

The role of benchmarking and performance indicators in re-engineering Land Administration Systems



A Basic Five Step Benchmarking Model

- 
- ```
graph TD; 1[1. Plan the project] --> 2[2. Form the team]; 2 --> 3[3. Collect the data]; 3 --> 4[4. Analyze the data]; 4 --> 5[5. Take action]; 5 --> 1;
```
1. Plan the project
  2. Form the team
  3. Collect the data
  4. Analyze the data
  5. Take action

**Recycle**

# 1. Plan the project

- identify the strategic intent of the business unit or process being benchmarked
- select the process to be benchmarked
- identify the processes' customers' profiles and set of expectations
- select the critical factors to benchmark

## 2. Form the teams

- select team members
- train the team

## 3. Collect the data

- how you perform the process
- how do benchmarking partners perform the process

## 4. Analyze the data

→ identify and analyze the gaps between best practice and your own business processes

- analyze findings from the site visits
- compare current performance against the benchmark
- find the gaps and their causes

# 5. Take action

- set goals
- decide change processes
- prepare budget
- implement
- monitor performance

# Analysis Tools

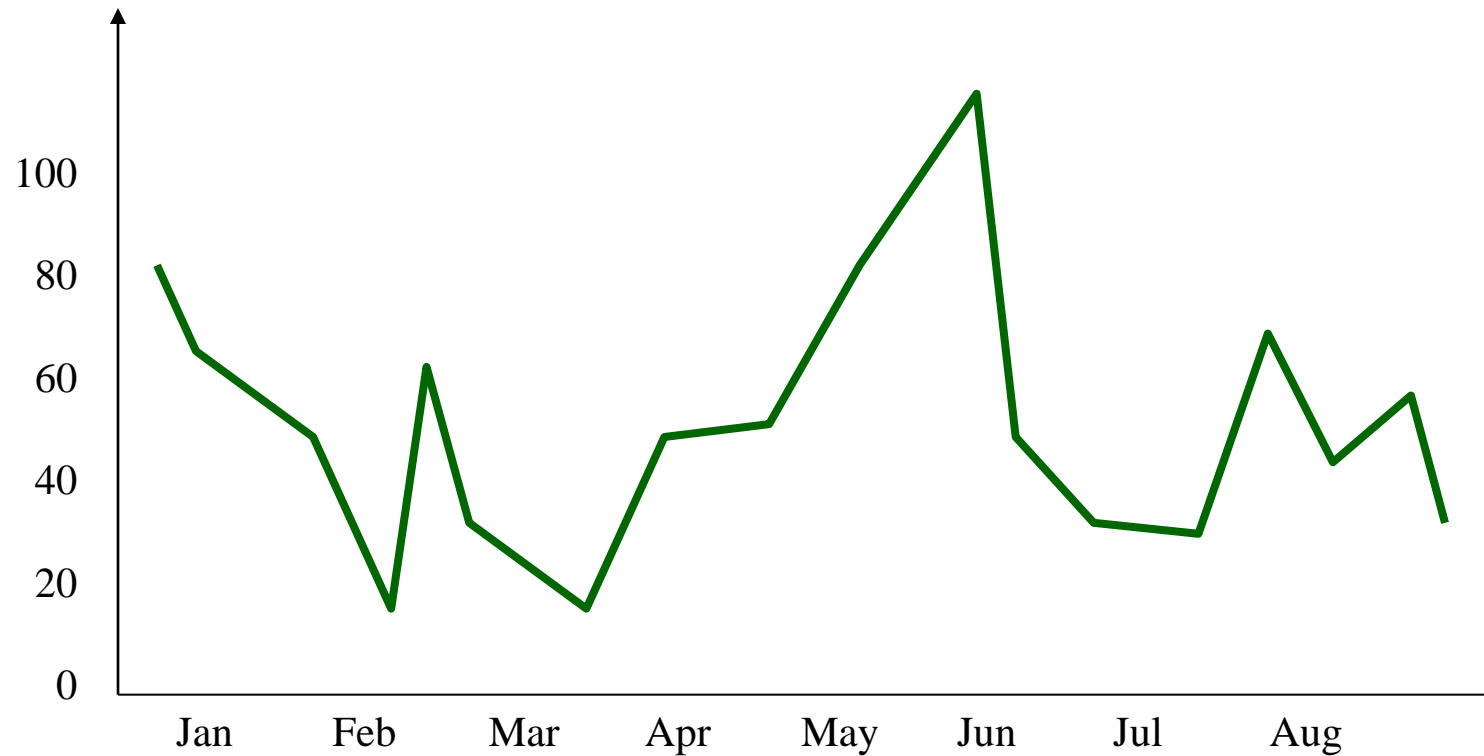
- flow charts
- work flow diagrams
- data collection worksheets (tally sheets)
- graphic check sheet
- run charts
- scatter diagrams
- frequency histograms
- pareto analysis
- cause-and-effect charts
- statistical control charts

# Analysis tools: tally sheet

**Example:** Determine problems in packaging in a warehouse.

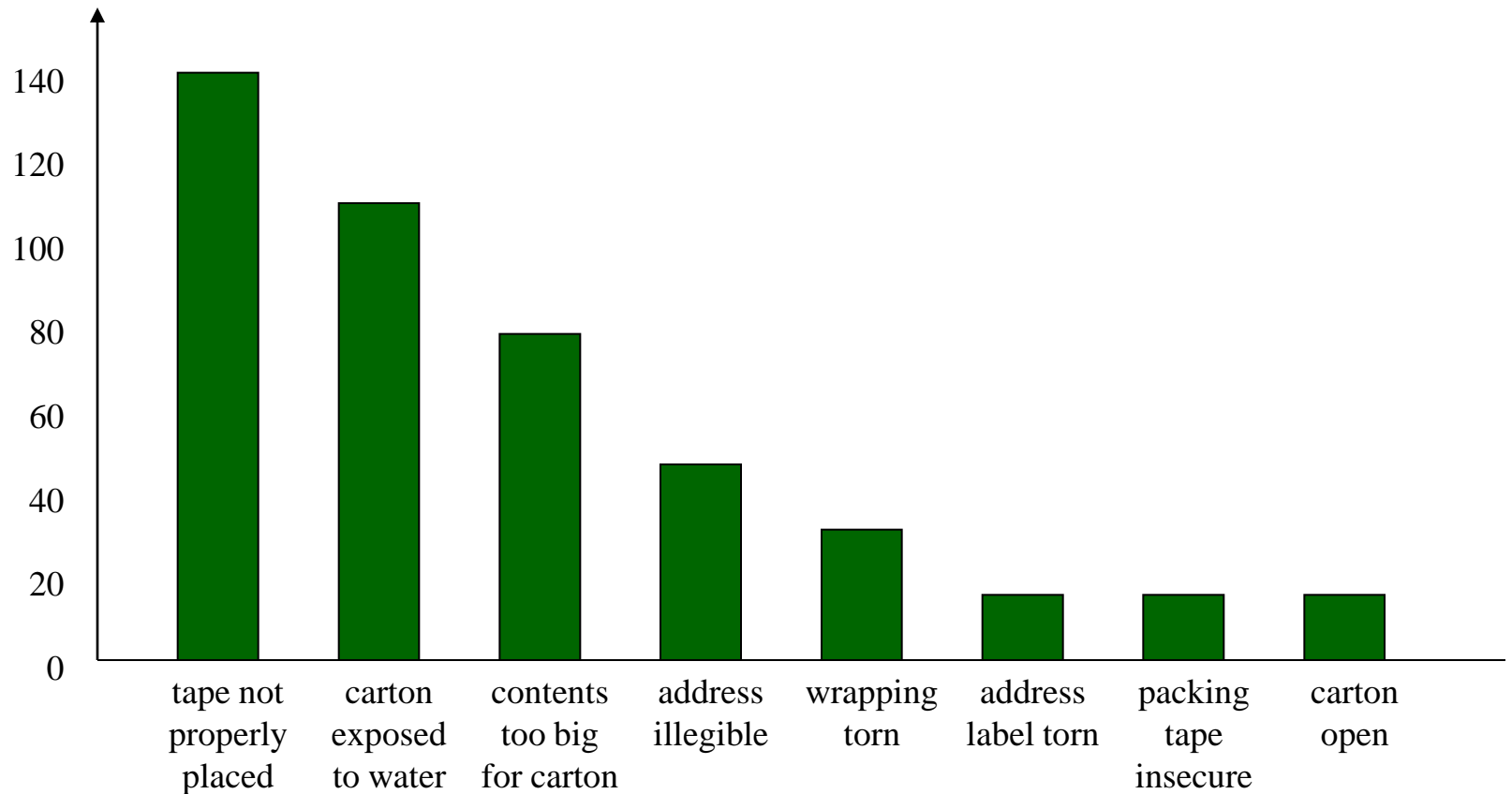
| Problem                  | Mon             | Tue                            | Wed                   | Thu                            | Fri                   | All        | %           |
|--------------------------|-----------------|--------------------------------|-----------------------|--------------------------------|-----------------------|------------|-------------|
| Wrapping torn            | III             | II                             | III                   | II                             | III                   | 14         | 5%          |
| Address label torn       | II              | I                              | II                    | I                              | III                   | 9          | 4%          |
| Carton open              | I               | II                             | I                     |                                | I                     | 5          | 2%          |
| Packing tape insecure    | II              | II                             | I                     | II                             | I                     | 8          | 3%          |
| Tape not properly placed | IIII IIII<br>II | IIII IIII<br>IIII IIII<br>IIII | IIII IIII<br>IIII III | IIII IIII<br>IIII IIII<br>IIII | IIII IIII<br>IIII III | 98         | 38%         |
|                          |                 |                                |                       |                                | <b>Total:</b>         | <b>260</b> | <b>100%</b> |

# Analysis tools: run chart

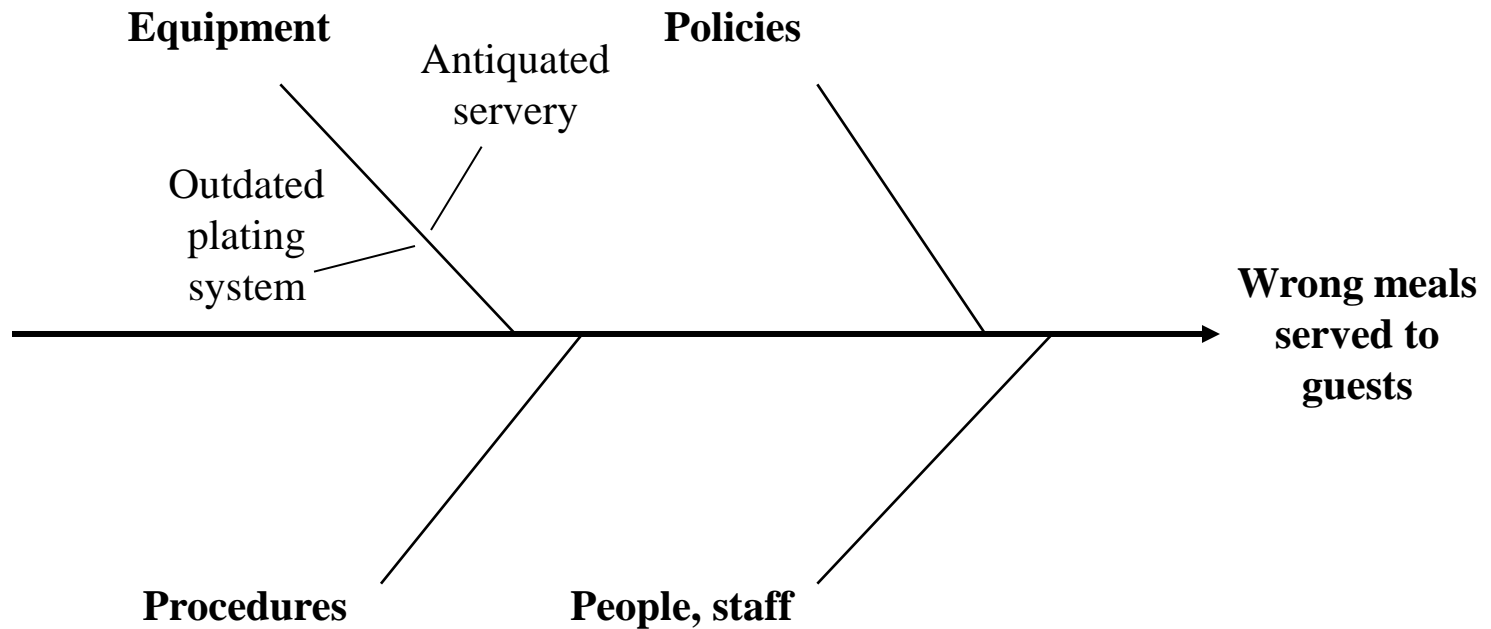




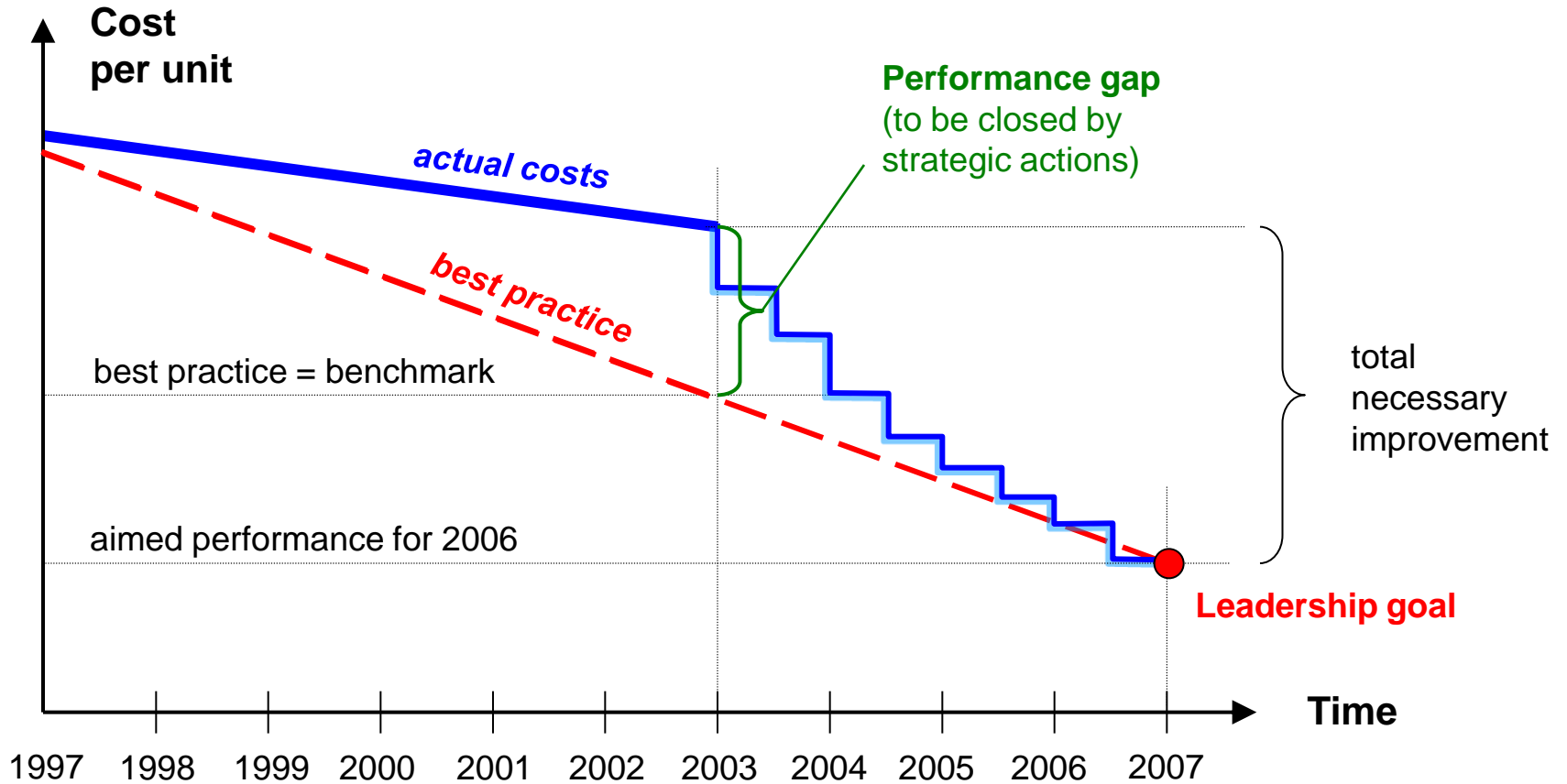
# Analysis tools: pareto analysis



# Analysis tools:cause-and-effect charts



# Analysis tools: Z-Chart



# Types of Performance Gaps

Depending on the scenarios, the gap can be:

- **positive** at first, you are probably astonished and delighted. Make sure the company knows about it. The longer you do benchmarking, you will have a positive gap as you learn and improve your processes and become eventually equal with the best.
- **neutral** there could be several reasons: wrong benchmarking partner / not detailed enough performance measures to observe the proper approaches / or did not pay enough attention to customers and the outcome of the processes
- **negative** you found clear potential for improvement

# Recognizing the Benchmark

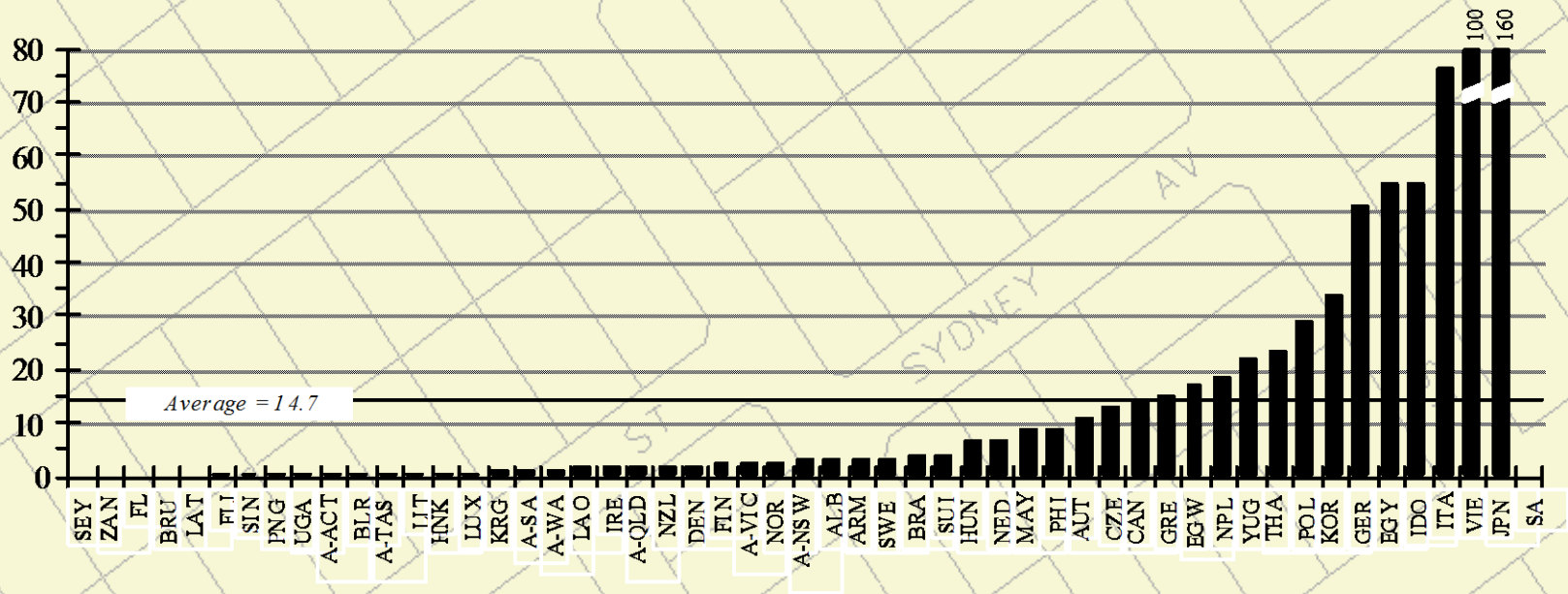
Three possible scenarios:

- the benchmark is you !!
- no appreciable difference in performance between your own company and the benchmarking partners
- the benchmark is obvious: there is room for major improvements according to your comparisons against the benchmarking partners

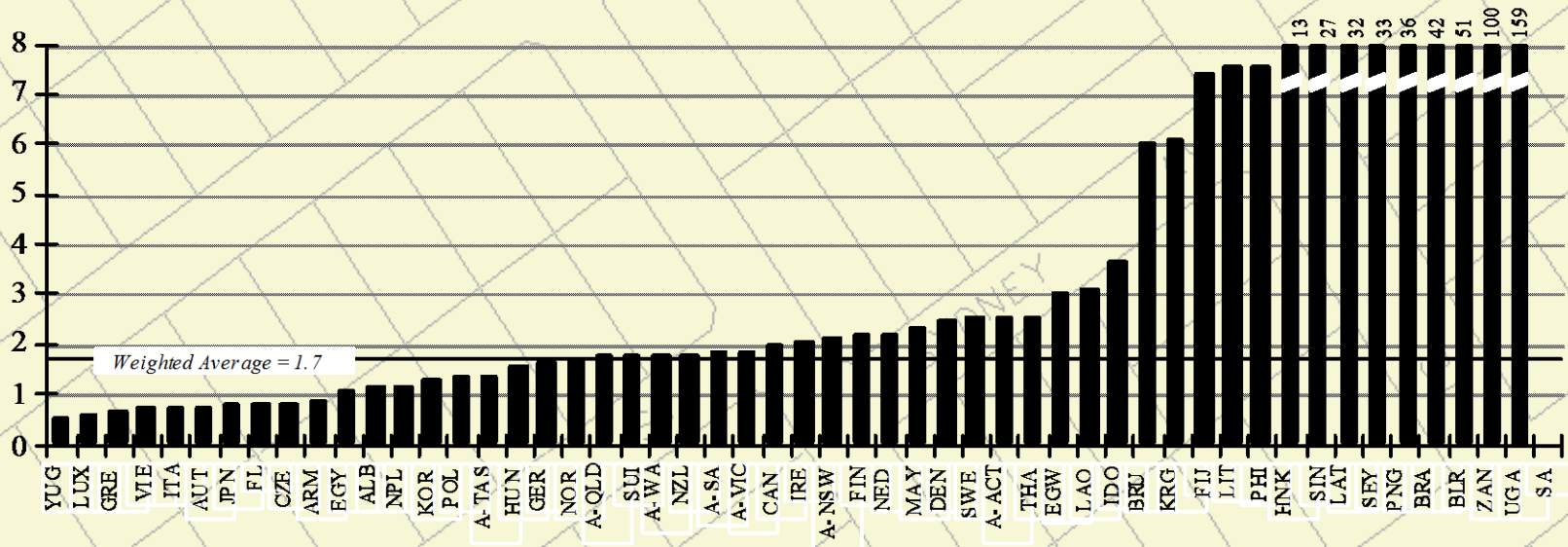
# **FIG Commission 7 Benchmark Project**

- Questionnaire distributed to over 80 delegates, of which 53 responded
- Data from the countries were compiled in five data sets
  - General statistics and content
  - Performance and reliability
  - Completeness
  - Personnel and salary structure
  - Cost recovery aspects

# Number of parcels within the jurisdiction in millions

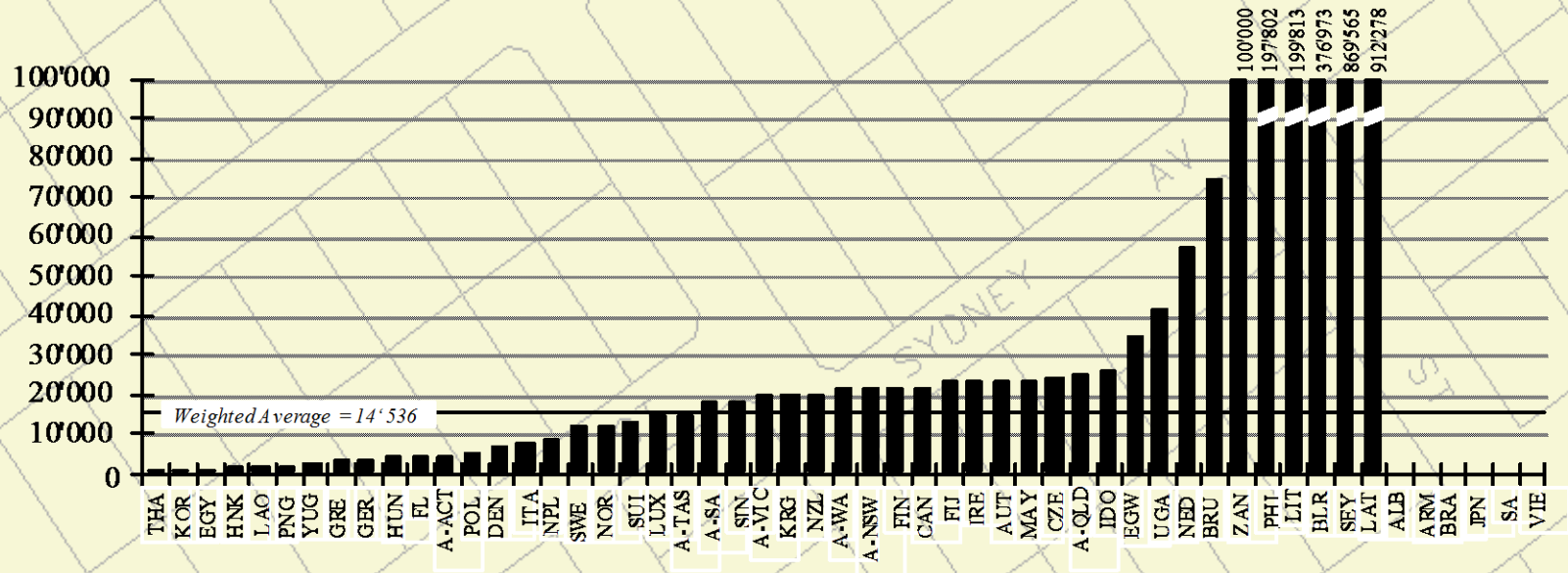


# Ratios of population per parcel

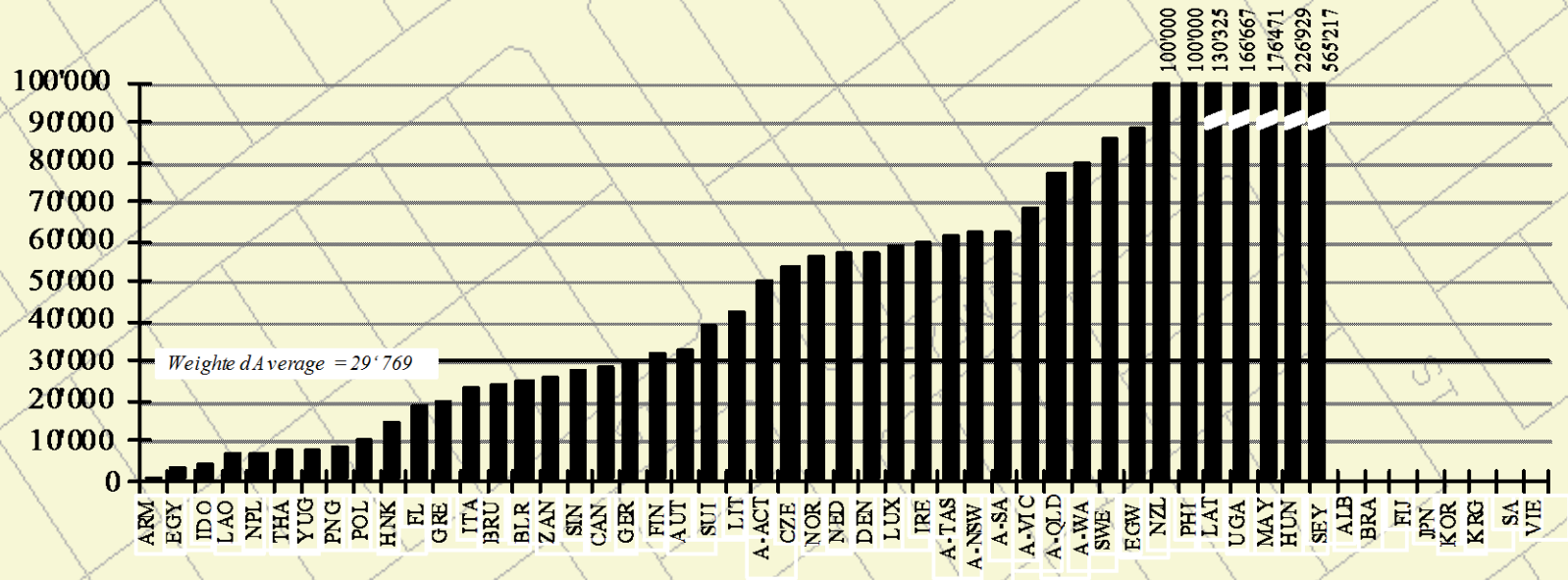




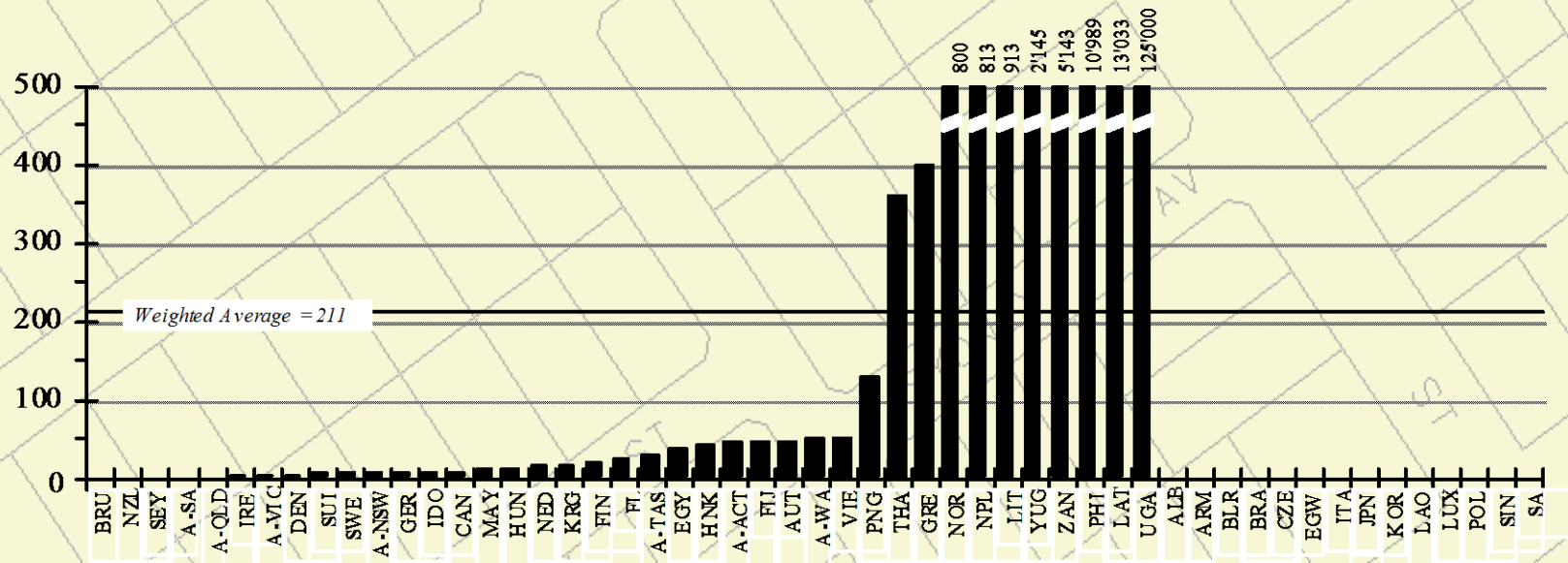
# Annual number of new parcels per one million parcels



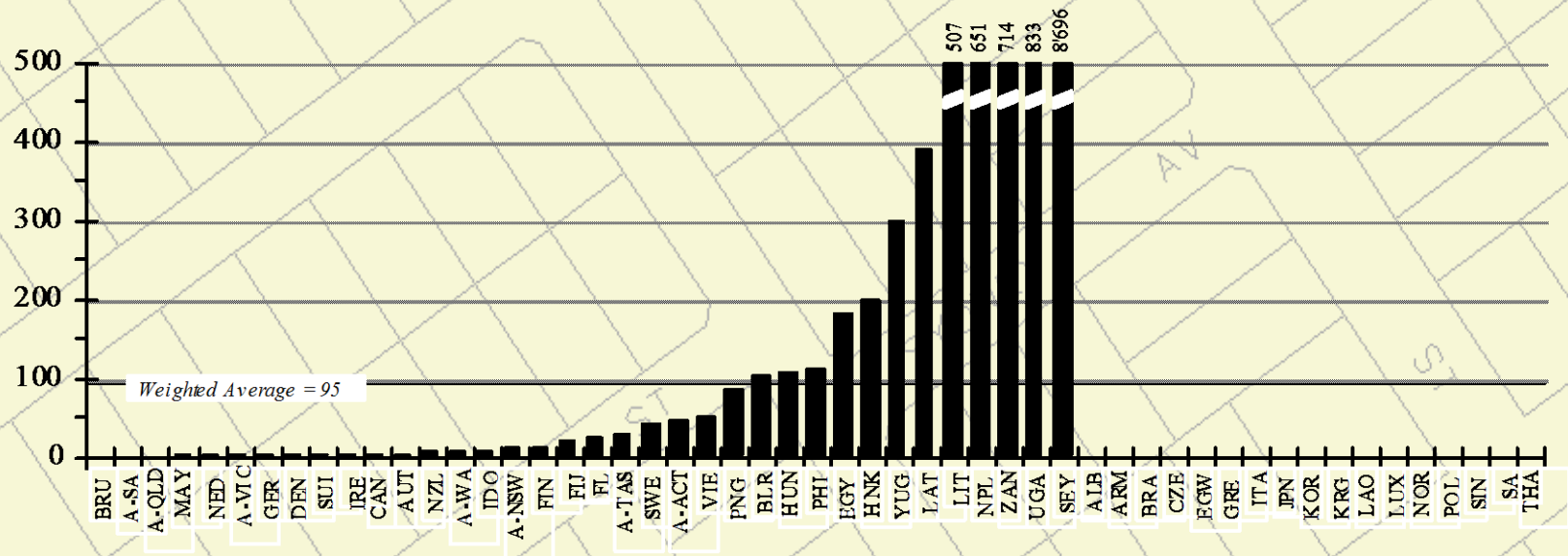
# Annual number of land transfers per one million parcels



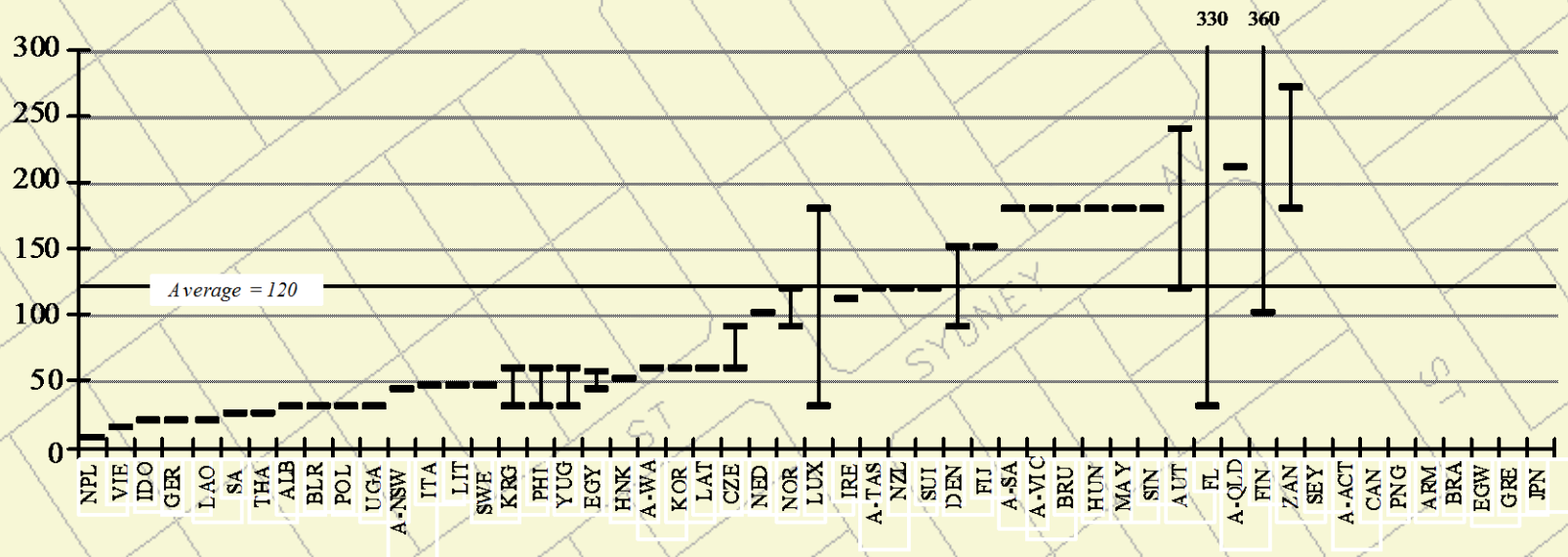
# Annual number of boundary disputes per one million parcels



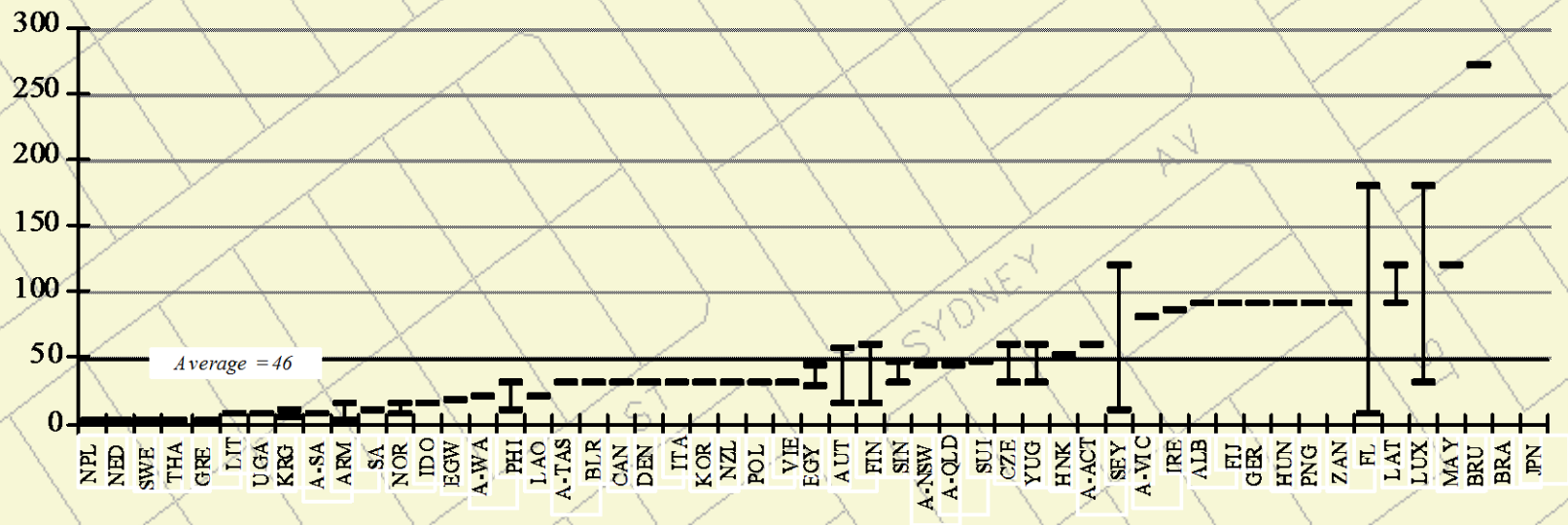
# Annual number of title disputes per one million parcels



# Time in days to subdivide land (minimal - maximal duration)

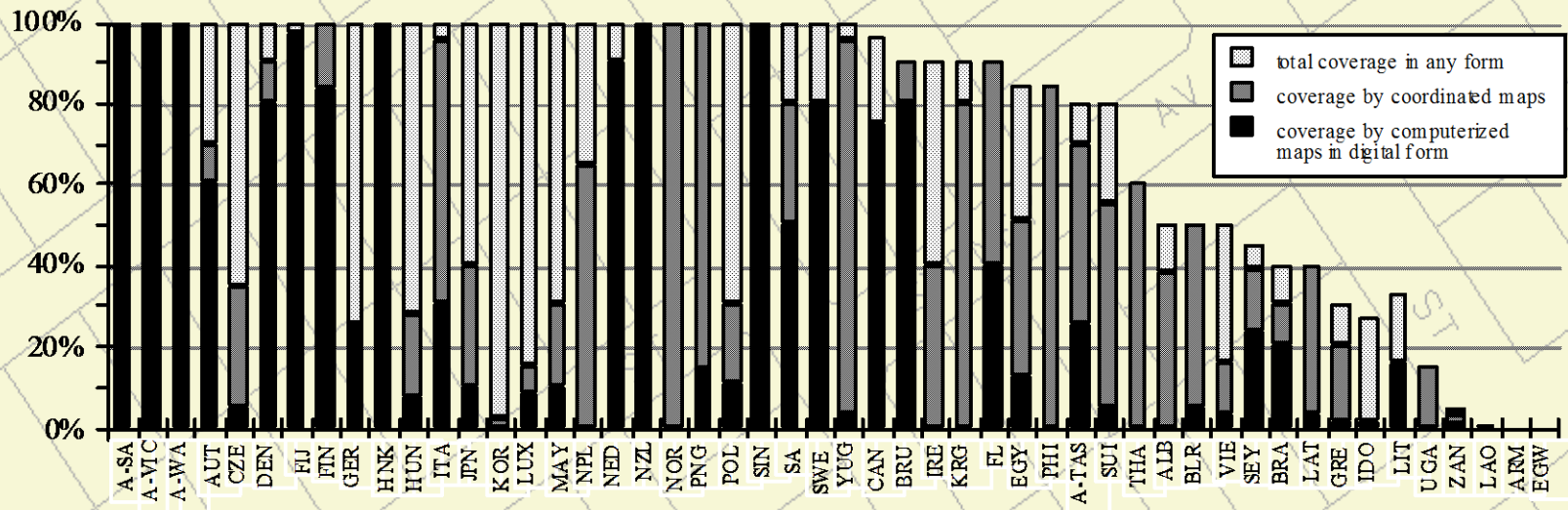


# Time in days to transfer land (minimal - maximal duration)

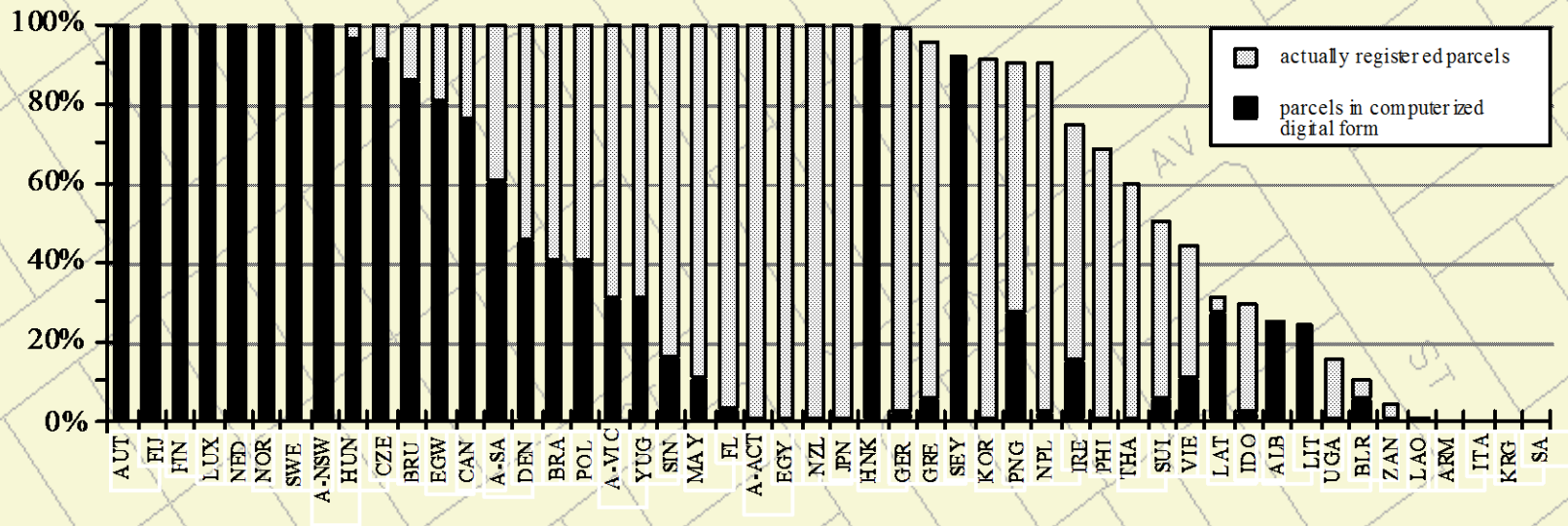




# Completeness of spatial component (cadastral surveying), sorted by proportion of total coverage in any form

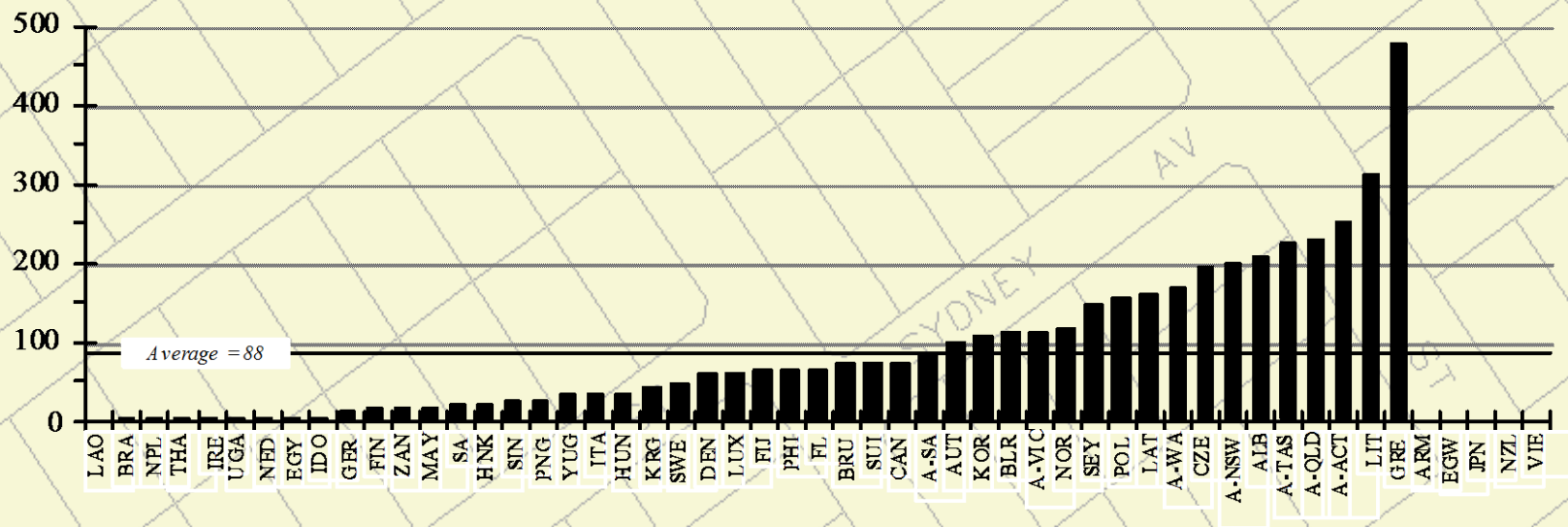


# Completeness of textual component (land registration), sorted by proportion of actual registration

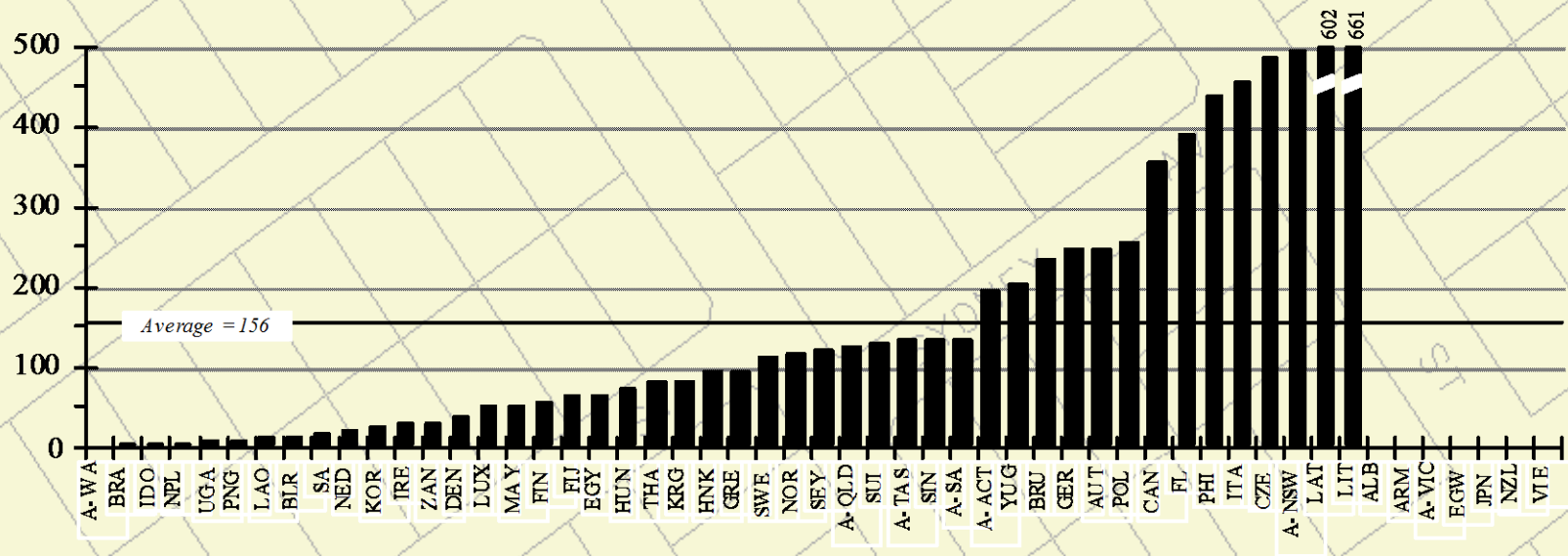




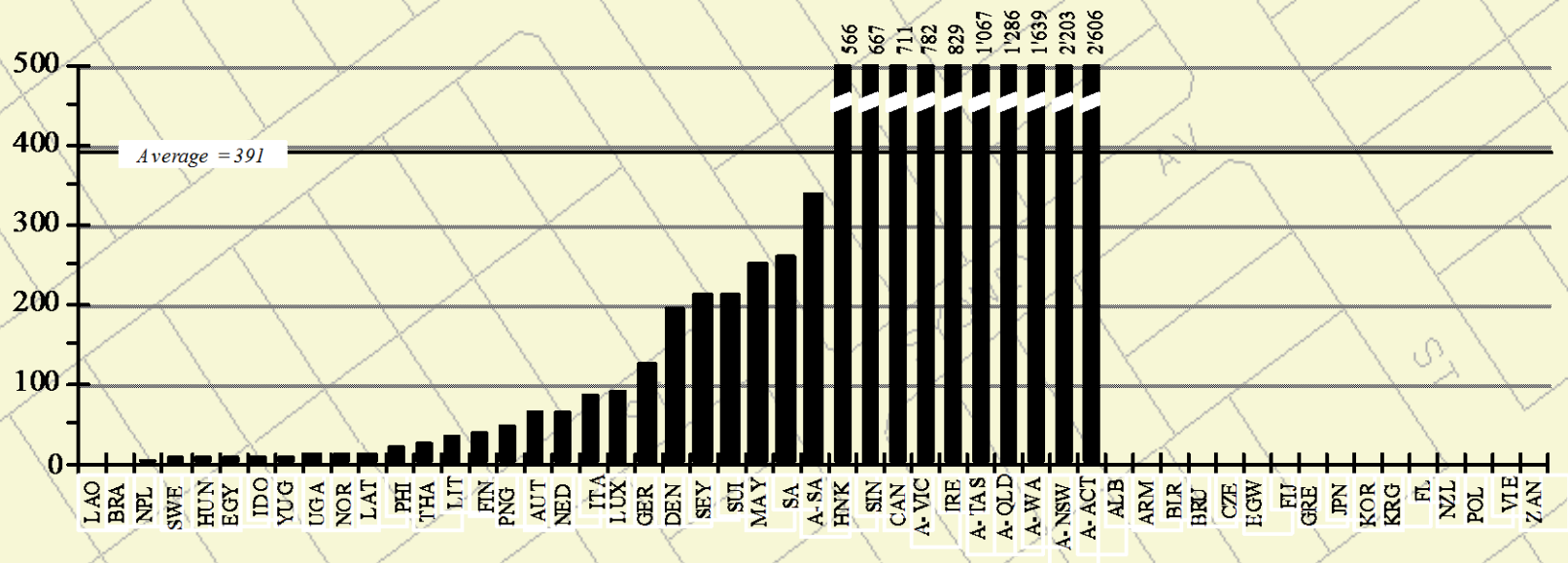
# Number of professional surveyors per one million population



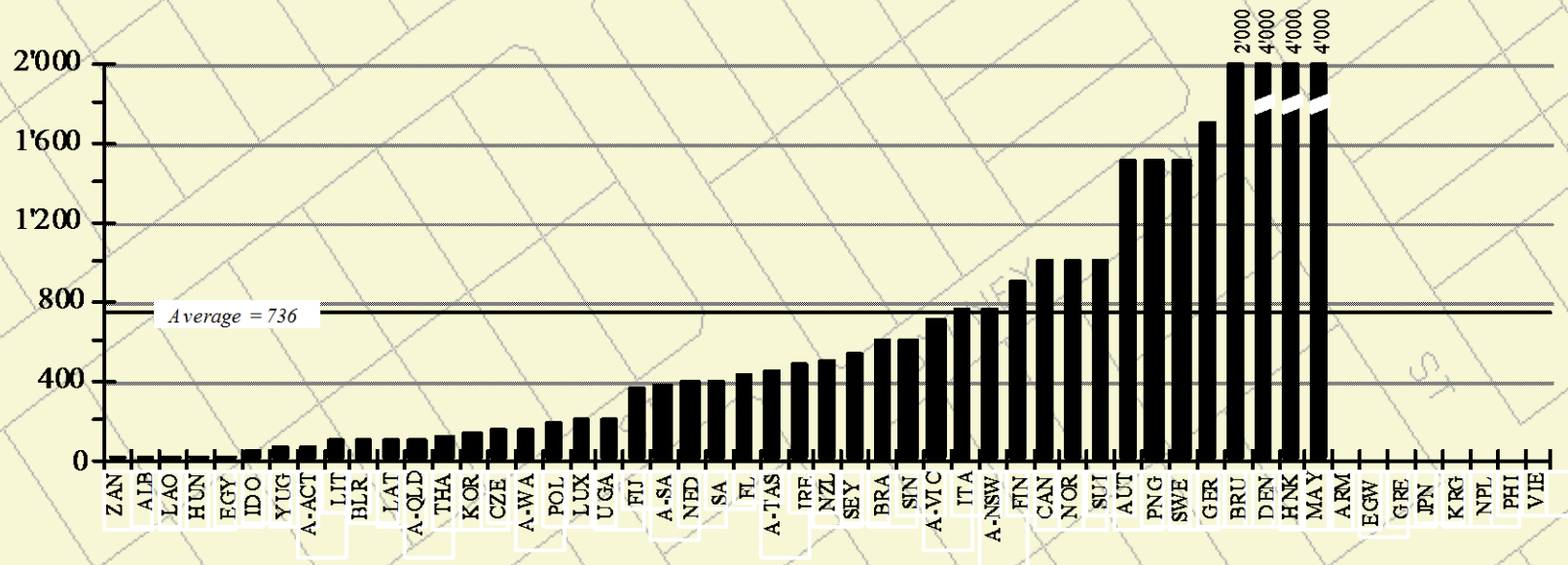
# Number of technician surveyors per one million population



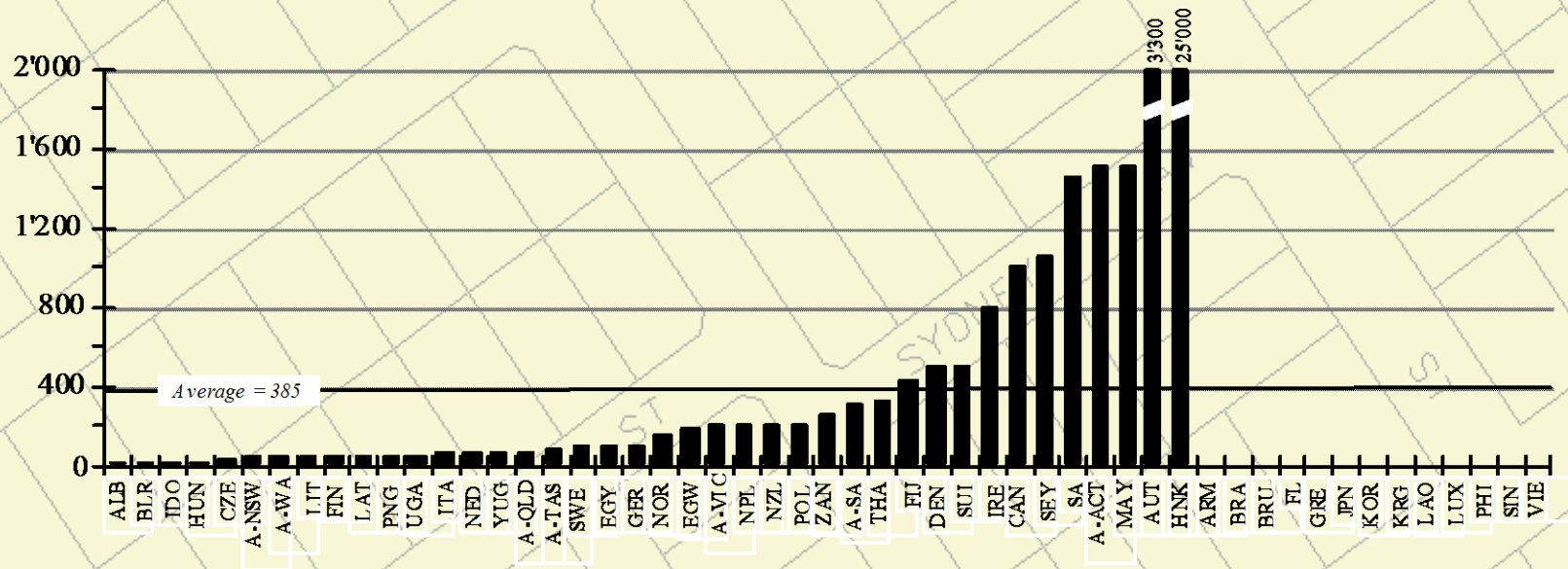
# Numbers of lawyers/solicitors per one million population



# Costs for a standard parcel subdivision in US\$/parcel



# Cost for a standard land transfer in US\$/parcel





PCGIAP Working Group 3 "Cadastre"  
FIG-Commission 7 "Cadastre and Land Management"  
University of Melbourne - Department of Geomatics

# Cadastral Country Profiles 2003

(based on the Cadastral Template 2003)

## Field Definitions

### Data per Field:

#### I. Country Report

##### A - Country Context

##### A1-Geographical Context

##### A2-Historical Context

##### A3-Current Political and Administrative Structures

##### A4-Historical Outline of Cadastral System

##### B - Institutional Frameworks

##### B1-Government Organizations

#### C - Cadastral System

##### C1-Purpose of Cadastral System

##### C2-Types of Cadastral Systems

##### C3-Cadastral Concept

##### C4-Content of Cadastral System

#### D - Cadastral Mapping

##### D1-Cadastral Map

##### D2-Example of Cadastral Map

##### D3-Role of Cadastral Layer in SDI

#### E - Reform Issues

##### E1-Cadastral Issues

#### II. Cadastral Principles and Statistics


##### 1.1 Cadastral Principles

##### 2.1 Population

##### 2.3 Parcels

##### 2.7 Professionals

### Data per Country:

as .htm 

as .pdf 

### Additional Document

# **Cadastral Template Web-site**

***[www.cadastraltemplate.org](http://www.cadastraltemplate.org)***

# To remember:

Benchmarking is:

- on-going and systematic process
- search for **best practice**
- comparison with **benchmarking partners**





# Exam Question

Define benchmarking and discuss the basic elements and their respective role in re-engineering land administration systems.